



- **Introduction**

- Watershed
- Nitrate Trends
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  - Results
  - Future

# Water Quality and Non Point Pollution Control

2003 National Source Water Protection Conference

June 2, 2003

**Dr. L. D. McMullen**

***CEO and General Manager***

**Des Moines Water Works**

**Des Moines, Iowa**

**Des Moines  
Water Works**



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# Des Moines Water Works

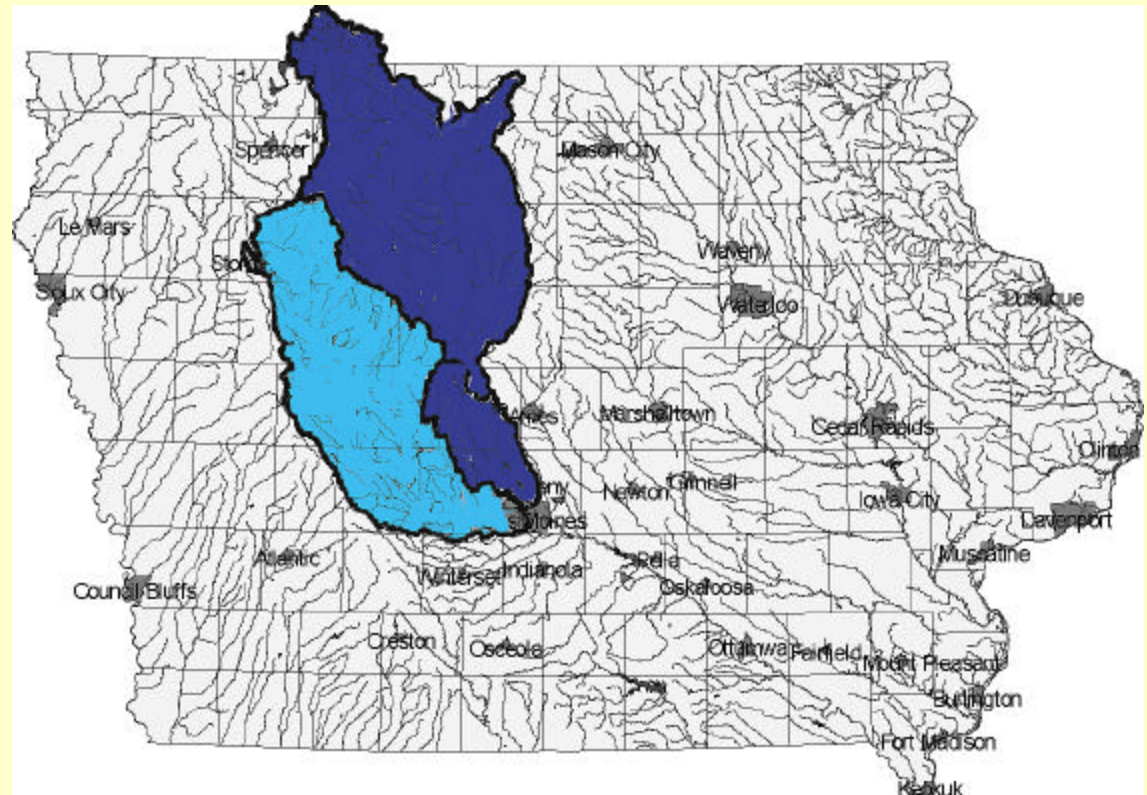
- Public utility governed by Board of Trustees
- 43 MGD average per day
- Serve 350,000 people
- Use surface water and ground water as source water

**Des Moines  
Water Works**



# The Watershed

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## Raccoon River Facts

- 23 counties contiguous to the watershed
- contains 28 rivers and streams
- 3595.5 total river miles
- contains 301 lakes - 9731.5 total acres
- covers 3639.25 square miles of land
- 519.99 perimeter

## Des Moines River Facts

- 26 counties contiguous to the watershed
- contains 47 rivers and streams
- 3973.4 total river miles
- contains 255 lakes - 20,601.4 total acres
- covers 5020.4 square miles of land
- 948.74 perimeter miles



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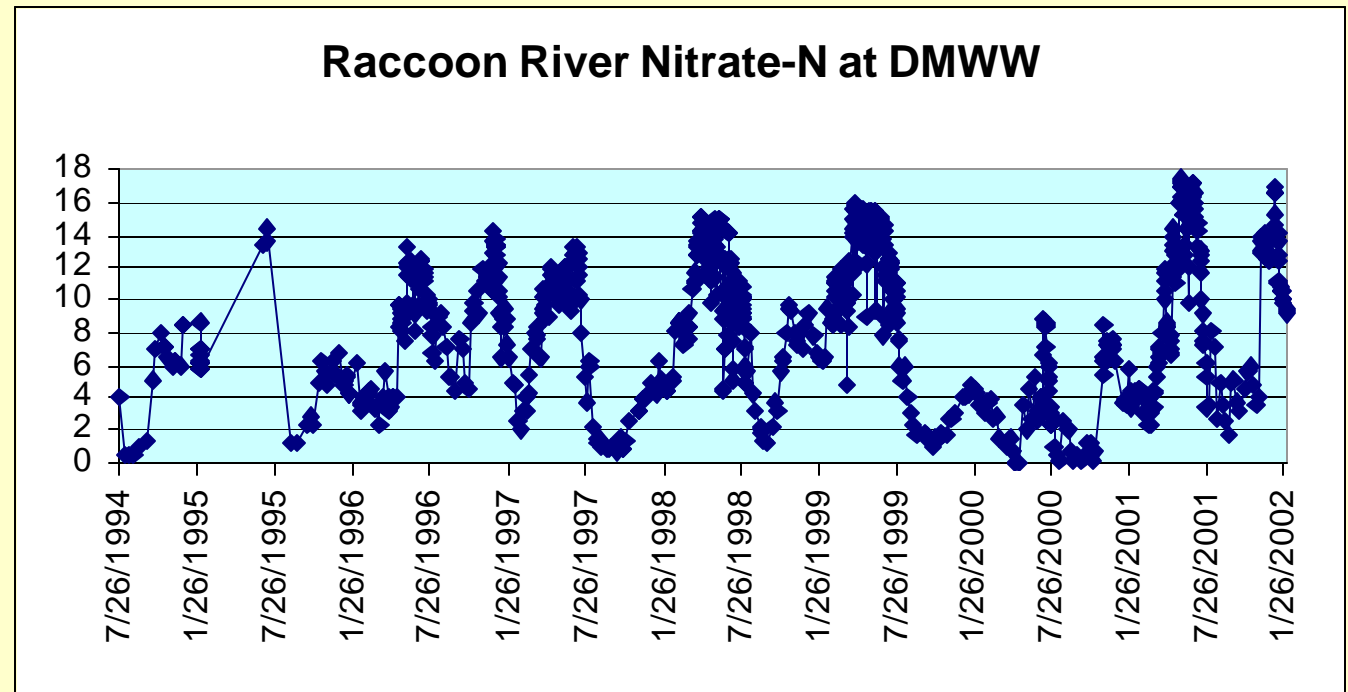
# Source Water Assessment

- National pipelines
- Non-point source pollution
- Agricultural facilities
- TRI, RCRA, & CERCLA sites
- Solid waste disposal facilities
- National & non-national priority sites
- Pesticide/fertilizer facilities
- Airports
- Business and industry discharges



# Nitrate Trends

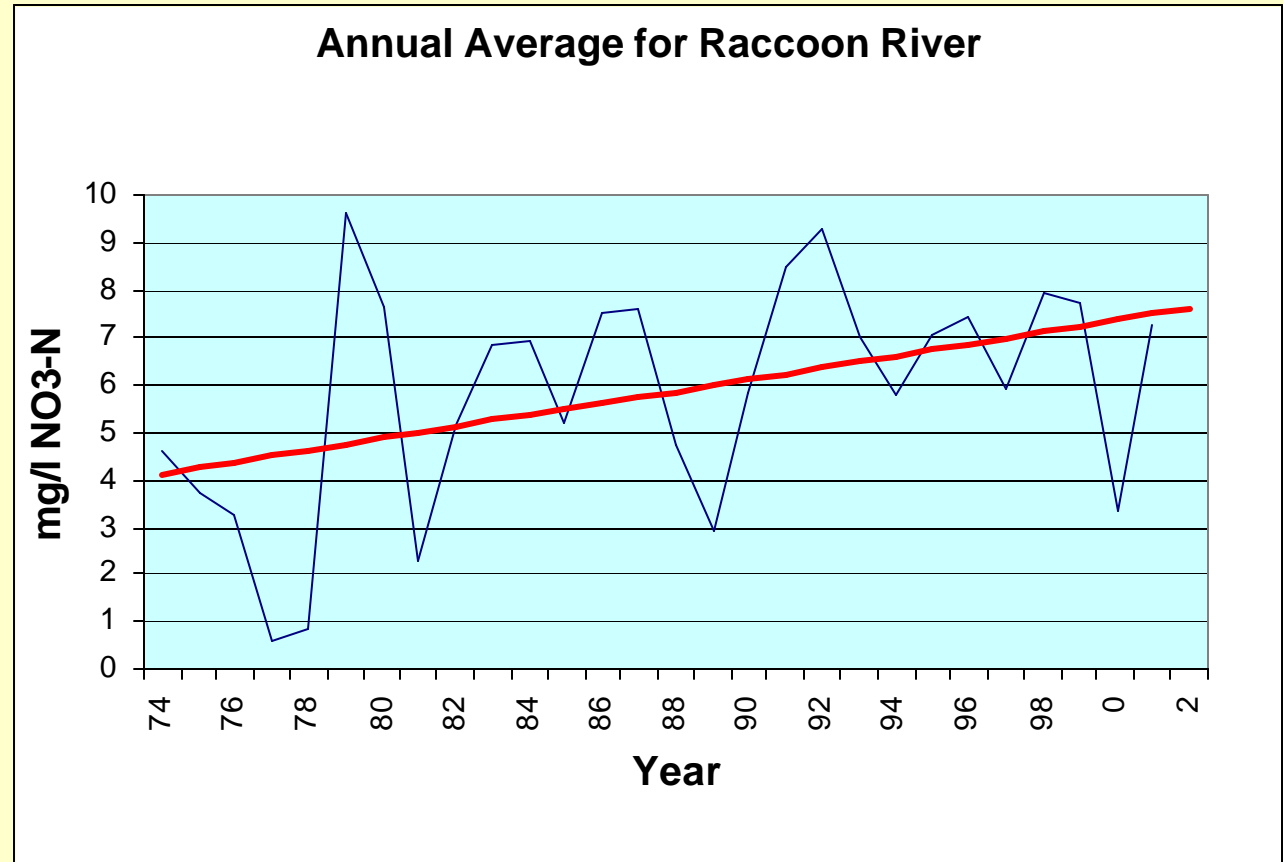
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# Nitrate Trends

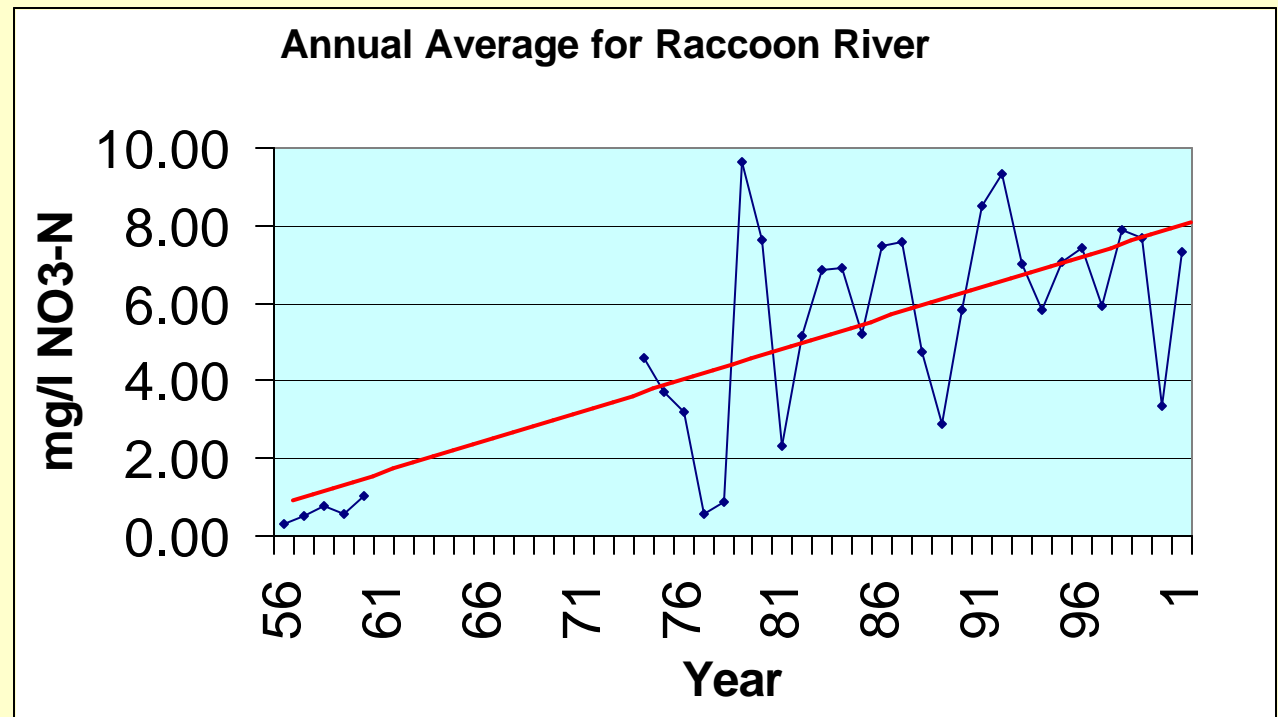
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# Nitrate Trends

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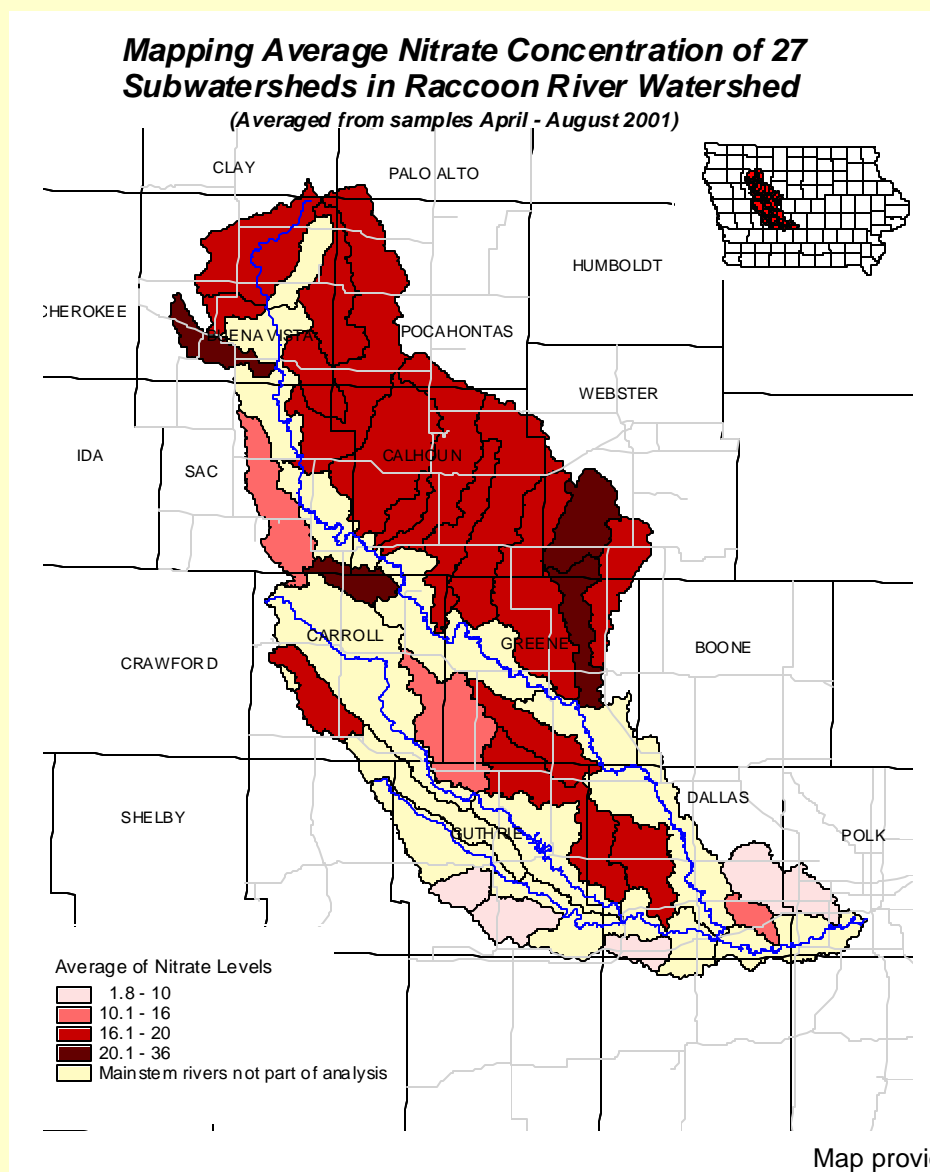




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# Volunteer Monitoring





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# The Goal

- ***Reduce*** nitrogen loss by 30%
- ***Change*** chemical application rates and times
- ***Change*** tillage practices
- ***Provide*** farmer safety net



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# Watershed Management

- Controls on nutrient loss to the environment
- Education for optimum nutrient usage
- Monitoring of successes



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# Anticipated Results

- ***Less cost*** for agriculture
- ***Improved*** in-stream water quality
- ***Improved*** environment
- ***Less cost*** for water treatment



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# How do we do it?

- Work within existing farm programs
  - Build into CREP
- Continue volunteer monitoring
- Develop topic fact sheets
- Work with watershed agricultural coops
  - Agricultural Clean Water Alliance